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State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

July 10, 2015

Jim Sorensen
Brown Canyon Stone Works, LLC
7684 Whileaway Road
Park City, Utah 84098

Subject: Initial Review of Notice of Intention to Commence Large Mining Operations, Brown's Canyon Stone Works, LLC, Brown's Canyon Rock Quarry Mine, M/043/0021, Summit County, Utah

Dear Mr. Sorensen:

The Division of Oil, Gas and Mining has completed a review of the referenced Notice of Intention to Commence Large Mining Operations (Notice) which was received June 12, 2015. The attached comments will need to be addressed before tentative approval may be granted.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address items requested in the attached technical review. The Division suggests setting up a meeting between with you and your consultant to discuss clarify the issues raised in this review. After the notice is determined technically complete, the Division will ask that you submit two clean copies of the complete and corrected Notice. Upon final approval, both copies will be stamped approved, and one copy will be returned.

Please submit your response to this review by August 30, 2015.

The Division will suspend further review of the Notice until receiving your response to this review. Please contact the appropriate reviewer with questions about the review: Leslie Heppler (lah) at 801-538-5257, April Abate (aa) at 801-538-5214, Mike Bradley (mpb) at 801-538-5332, Lynn Kunzler (lk) at 801-538-5310, or Wayne Western (whw) at 801-538-5263. Thank you for your cooperation in completing this permitting action.

Sincerely,

Paul B. Baker
Minerals Program Manager

PBB:lah:eb

Attachment: Review

cc: Summit County – SLewis@summitcounty.org

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**Initial REVIEW OF NOTICE OF INTENTION
TO COMMENCE LARGE MINING OPERATIONS
Jim Sorensen-Brown Canyon Stone Works, LLC
Browns Canyon – Rock Works
M/043/0021
July 10, 2015**

General Comments:

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
1	No page number (Before page i)	<p>The Notice says in reference to a cultural resources survey, "Since this mining operation has been in operation for many years, this is not needed for this site" The Division needs the cultural resources survey to fulfill its obligations under Utah law. Please see the following link: http://le.utah.gov/~code/TITLE09/htm/09_08_040400.htm</p> <p>The areas proposed in the Notice for future disturbance will need to be surveyed for cultural resources, but in addition the Division recommends surveying any possible expansion areas.</p> <p>In addition, please change the last statement on page 23, as the survey will be confidential</p>	lah lah lah	
2	General	The mining plan submitted does not show much area for expansion. The Division recommends including all areas where mining might expand in the next five years.	lah	
3	General	The submittal should be formatted to easily incorporate additional revisions and amendments. All revisions should refer to comment number and also page where revisions were made.	lah	
4	General	The Division may generate additional comments based on submittals received in the future. A cover-to-cover review will need to be done on the final plan before it is approved.	lah	
5	Appendix C	The executive summary is out of date.	lah	

R647-4-105 - Maps, Drawings & Photographs

General Map Comments

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
6	Exhibit C	This figure is difficult to read. The property map should be one separate map. The facilities should be on a separate map. The hydrology features (with topographic contour lines) should be a separate map. By placing all hydrology features and topographic contours on the same map the projected impacts to surface and groundwater systems (R647-4-109) can more effectively be reviewed.	lah	
7	All Maps	Please only use bar scales on each map, as the documents the Division scans may be printed on different paper sizes.	lah	
8	All Maps	Many maps have "all streams" in the legend. The streams need to be further delineated by type of stream such as perennial, etc.	lah	

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105.1 - Topographic base map, boundaries, pre-act disturbance

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
9	Exhibit B	Please label the state route and include an arrow with distance to both I-80 and US-40.	lah	

105.2 - Surface facilities map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
10	Exhibit C	Please remove the facilities from the site map and put on the surface facilities map (which is currently listed as Exhibit D).	lah	
11	Page 4 - b.	The text only notes two temporary buildings, but at the last inspection there were also scales and a scale house. The plan should include any future buildings that might be placed at the site so constant updating of the Notice is not needed.	lah	
12	Page 5 - 1 st Bullet	As noted in the Division's comment above, the text notes two temporary buildings, but there are more buildings and equipment that will have to be removed in reclamation. In addition the Division prefers that data is not included in multiple locations in the plan. Objects which require demolition or removal prior to reclamation are best listed under section 105.2 and on the surface facility map.	lah	
13	Page 5 - 1 st b.	The text discusses Exhibit C and D "proposed acreage." The proposed acreage needs have a cultural resource survey and be cleared for cultural resources before being disturbed.	lah	
14	Page 5 - 1 st c.	Please show the location of the mine pit on the map.	lah	
15	Page 5	Reclamation Treatment Map checklist. The reclamation treatments maps should be addressed under R647-4-15.3. The text notes the reclamation treatment is shown on figure D and E and the "entire area permitted" will be reclaimed (also noted on page 6 c.). The Division needs enough detail to make a proper reclamation cost estimate.	lah	
16	Page 5	The reclamation treatments maps (Exhibits D and E) do not differentiate areas that will receive different treatments. For example, will all areas be backfilled or only the pits and highwalls? Will all receive the same soil replacement depth, amendments, seeding methods, seed mixes, etc? Are all areas compacted so that they need to be ripped to the 12-18-inch depth?	lk	
17	Exhibit D	This map does not match what is on the ground. There are several stockpiles and roads which are not accounted for in the legend.	lah	

105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
18	Exhibit E	The reclamation map is incomplete. It does not show where soils will be redistributed and revegetation will be implemented. Include acreages of these reclamation activities on the reclamation map.	mpb	

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
19	Exhibit E	The intent of a reclamation map is to show what will be done at the time of reclamation. All cross sections need both the existing surface and the reclaimed surface on each cross section. The volumes are needed to properly calculate the reclamation cost estimate. The Division recommends not including vertical exaggeration in the cross sections as it can be confusing to non-engineers.	lah	
20	Page 6	There are numerous sources of older topographic and air photos showing the progression of mining in the area. Google Earth goes back to 1993 and shows a very limited mining footprint. Please revise the text to be accurate.	lah	

105.4 - Photographs

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
21	Exhibit A	Please limit to two photographs per page, as the resolution after scanning makes them difficult to view.	lah	

105.5 – Underground and Surface Mine Development Maps

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
22	Omission	Please note in the plan, that there are no underground workings.	lah	

R647-4-106 - Operation Plan

106.1 - Minerals mined

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
23	Page 7	The Division recommends including “stone for engineering material.”	lah	

106.2 - Type of operations - mining method, onsite processing, deleterious or acid-forming materials

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
24	Page 8	The operator states that no deleterious or acid forming materials are on site. However, a fuel storage area was noted on Exhibit C, and photos of a fuel tank were provided. Please review the definition for deleterious materials found in rule R647-1-106 and provide a complete inventory of any items that meet the definition and update this section of the Notice.	aa	

106.3 - Estimated acreages disturbed, reclaimed, annually/sequentially

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
25	Page 7	The table on page 7 needs to match Exhibits C & D.	lah	

106.4 - Nature of materials mined or processed (including waste materials), and estimated annual tonnages

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
26	Omission	Please include tonnages.	lah	

106.5 - Existing soil types, location, amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
27	Page 9	The operator has written "No known landslides have occurred. . . ." If indeed there was a landslide at this site more information would be needed in Sections 106.8 and 109.4. It is not clear why the statement is in Section 106.5.	lah	
28	Page 9	The soils table on this page needs to be expanded to include all soil material that has been salvaged. At a minimum of 6-inch depth, there should be at least 23,070 cubic yards that has been or will be salvaged.	lk	
29	Page 9	Please provide the lab analysis that is the basis for amending soil materials for reclamation. The NRCS survey only gives general soil data but not specific data needed to determine soil suitability and what fertilizers or other soil amendments may be needed for successful revegetation. The analysis needs to include, at a minimum, pH, sodium adsorption ratio, electrical conductivity, cation exchange capacity, percent organic matter, total nitrogen, nitrate nitrogen, phosphorus (as P ₂ O ₅), and potassium (as K ₂ O).	lk	

106.6 - Plan for protecting & re-depositing soils

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
30	Omitted	Please provide data regarding how much soil material has already been salvaged for reclamation as well as the amount to be salvaged with the expansion. Show the locations of each stockpile area and the volume of soil in each stockpile.	lk	

106.7 - Existing vegetation - species and amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
31	Page 10 and App. C	Page 10 refers to Appendix C for vegetation information. Appendix C does not contain a vegetation survey but contains the Division's original executive summary for the mine when it expanded to 9.1 acres. This document provided only a preliminary summary and stated that a vegetation survey would need to be completed on areas adjacent to the mine prior to mine expansion. Please provide the results of a detailed vegetation survey that includes a list of the species occurring at the site as well as the percent ground cover of vegetation for each vegetation community.	lk	

106.8 - Depth to groundwater, extent of overburden, geologic setting

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
32	Page 10	Omission – Please include a brief description of the geology of the area, which would be consistent with Exhibit 4. The executive summary in Appendix C is not the same as the geologic setting.	lah	
33	Page 10	No silt fences were noted on site at the last inspection. The Division recommends the use of stone check dams as they have been very effective in the area.	lah	
34	Page 10	Please show the locations on the map where storm water is retained.	lah	
35	Page 10 & Exhibit B	The pit bottom is shown at an elevation of 6,475 on x-section B-B'. Please provide more detail.	lah	
36	Page 10, Exhibit C	The operator has not adequately characterized groundwater in the region. Several additional well logs from underground water rights were identified east of the mine. No discussion of whether or not there was any data from the other wells in the vicinity (i.e. E1439, E3857, E1440) was provided. Groundwater depth was reported from well data at varying elevations. Are these perched systems or a continuous aquifer from a particular geologic formation? Does groundwater follow a regional gradient? The final pit bottom at reclamation is reported at an elevation of 6,480, which could potentially encounter groundwater based on available data from well logs. Please provide a better characterization of groundwater resources in the vicinity of the mine.	aa	
37	Page 10	The plan did not address in the narrative the extent of overburden or any description of the geology. Please provide a characterization of overburden extent and regional and site-specific geology.	aa	

106.9 - Location & size of ore and waste piles, tailings, ponds

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
38	Page 11	Section 106.9 should be customized for the specific item, and in addition the items need to match the map. There are no tailings on this mine site.	lah	

106.10 - Amounts of material extracted or moved (including ore, waste, topsoil, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
39	Omission	Please address section rule 106.10.	lah	

R647-4-109 - Impact Assessment

109.1 – Projected impacts to surface & groundwater systems

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
40	Pg. 13	Please indicate on a map where the protective measures mentioned in this section are located or will be located. As an alternative to producing a new map, please provide a copy of the existing industrial stormwater permit through the Division of Water Quality that describes, in detail, protections in place and proposed to protect surface water systems.	mpb	

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
41	Page 13, Exhibit C	There is no discussion of surface water resources in this section. The plan identifies what is called an intermittent stream on the west side of the property but it is not clear if that is a true intermittent stream that runs seasonally, or in response to groundwater, or if it is an ephemeral wash. A second surface water body is shown on Exhibit C running along the east side of the mine operation but it is not described anywhere in the text. Is this a second "intermittent stream" or does it only flow ephemerally in response to storms? Please provide more information.	aa	
42		Lost Creek, which appears to be downgradient of the mine, was mentioned in the text but not described. Is it a perennial creek? Does it drain into a major waterbody?	aa	

109.2 – Potential impacts to threatened & endangered wildlife/habitat

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
43	Page 14	The site has expanded from less than five acres in 2000 to about 28.6 acres today. Therefore the statement that the site has been in operation and developed for the last few decades in is incorrect. Please provide a discussion of the impacts this operation has had on wildlife resources and projected impacts for future operations. A loss of 28.6 acres of habitat is substantial. Include in this discussion impacts and potential impacts on the greater sage grouse. (Just because this site is not within a political sage grouse management area, does not mean that impacts to this species will not occur.) There are active leks in close proximity to the quarry and it is likely the area of the quarry was used for brooding/rearing habitat as well as summer/winter range.	lk	
44	Page 14, Exhibit C	No information was provided as to the amount of precipitation the area receives. Information was not provided on whether or not the culverts are sized for a design storm event. It was not clear if culverts exist at the property or if they are to be installed.	aa	

109.3 – Projected impacts on existing soils resources

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
45	Page 14 and page 15, 109.4	Please fix the typo: H3:1V should be written as 3H:1V.	lah	
46	Page 15	Part d states "... maximum side slopes of H3:V1 to reduce erosion. All compacted soil areas will be ripped and furrowed along contours of the slopes and contour imprinting will be utilized. . . ." Where are the compacted areas that will be ripped? Will slopes be ripped as well? If slopes are ripped on the contour, then there is no need to "imprint" after ripping.	lk	

109.4 – Projected impacts on slope stability, erosion control, air quality, public health and safety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
47	Omission	Please include a discussion in the text about the slope stability of the pit highwall.	lah	

109.5 - Actions to mitigate any impacts

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
48	Omission	Discuss potential mitigation for impacts to the greater sage grouse. At a minimum the revegetation plan should be revised to include species that are important to sage grouse. (see comments under 110.5)	lk	
49	Page 16	The Notice says mining will be above groundwater levels. However, well data show the following groundwater elevations at nearby wells: 6470 and 6595 feet. These elevations are within 10 feet below or 115 feet above the mine pit levels (6,480'). Please provide mitigation plan if groundwater is encountered in the mining pit operation.	aa	

R647-4-110 - Reclamation Plan

110.2 – Reclamation of roads, highwalls, slopes, impoundments, drainages, pits, piles, shafts, adits, etc

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
50	Page 17 all	Please fix the typos on the page. Several slope designations do not conform to standards (2:1, 3:1).	lah	
51	Pg. 17	The aerial photos in Exhibits C and D indicate that the ephemeral stream channel on the west side of the property has been impacted. Please describe how these impacts will be mitigated and how the drainage patterns will be re-established as required by this rule and R647-4-111.2.	mpb	
52	Page 17 b.	More information is needed on the reclamation for the highwall, as it greatly affects bond costs.	lah	
53	Page 17	In Sections b, d, and e, the Notice says the reclaimed surface is expected to be grass/oak covered. Oak is not included in the revegetation plan; how will it become established? In Section C–Slope Reclamation, the Notice says the reclaimed surface is expected to be grass covered, yet the revegetation plan includes forbs and shrubs. Please modify the statement in the Notice. This section also refers to composted manure being used. Please provide the rate of application.	lk	
54	Page 17	The Notice says drainage/natural drainage patterns are “not part of this mine plan” and therefore are not addressed. Exhibit D shows that the drainage on the west side of the current mining operation has in fact been encroached on by mining activity. As such, a reclamation plan to restore that segment of the drainage is required.	aa	

110.4 - Description or treatment/location/disposition of deleterious or acid forming materials, including map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
55	Pg. 18 omission	The response in Section 109.5a states that fuel will be stored in tanks with 110% secondary containment. Fuels, oils and other petroleum-based products used and stored on site are considered deleterious materials. Please identify all fuels, lubricants and oils used and/or stored on site and quantify them. A table may be the best option for this. Alternatively, an SPCC plan may be provided in an appendix.	mpb	

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
56	omission	Other deleterious materials that should be identified and quantified to include for potential disposal costs as part of bond calculations are: Older building materials that may contain asbestos and/or lead-based paint; older transformers (owned by the company) that may contain PCBs; any other hazardous materials that require special abatement and handling procedures and/or disposal locations.	mpb	

110.5 - Revegetation planting program

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
57	Page 18	The Notice says in subpart 1 that a minimum of six inches of soil will be placed and approximately 2,310 cubic yard will be used. To apply six inches of soil over 28.6 acres will require a minimum of 23,070 cubic yards. Please correct.	lk	
58	Page 18	Please provide the rate (tons/acre) at which composted manure will be applied.	lk	
59	Page 19	Please make the following changes to the revegetation seed mix: add Canby bluegrass (<i>Poa secunda</i>) at a rate of 0.1 pounds/acre pure live seed (PLS), western yarrow (<i>Achillea millefolium</i>) at a rate of 0.1 pounds/acre, and lewis flax (<i>Linum lewisii</i>) at a rate of 1.0 lbs/acre and eliminate intermediate wheatgrass (<i>Elymus hispidus</i>) from the mix, to enhance sage grouse rearing habitat.	lk	

R647-4-113 – Surety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
60	Un-numbered page in Appendix D	As of the last inspection, there is currently enough equipment on site that there would be more than eight trips to remove equipment and debris from the site.	lah	
61	Un-numbered page in Appendix D	Please use the Divisions spreadsheets posted on its web site at http://linux1.ogm.utah.gov/WebStuff/wwwroot/minerals/bonding_worksheets.html .	whw	